

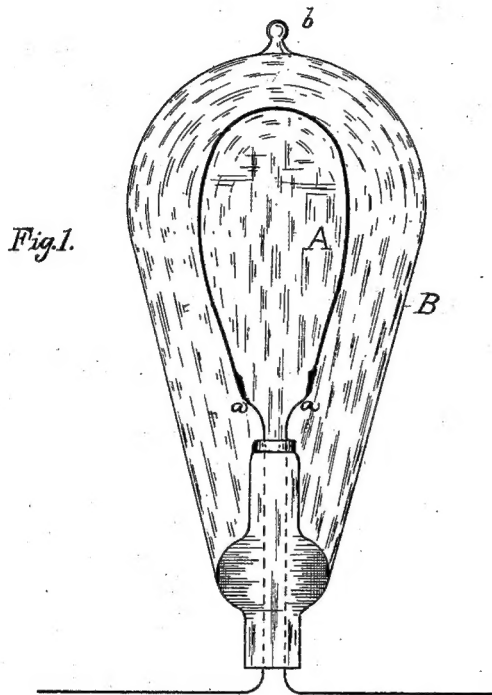
(No Model.)

T. A. EDISON.

FILAMENT FOR INCANDESCENT LAMPS.

No. 307,029.

Patented Oct. 21, 1884.



ATTEST
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UNITED STATES PATENT OFFICE.

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FILAMENT FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 307,029, dated October 21, 1884.

Application filed October 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Electric Lamps and the Manufacture thereof, (Case No. 489,) of which the following is a specification.

The object I have in view is to provide a simple and economical process of forming the carbon incandescing filaments of electric lamps, which process shall produce flexible filaments of even density and resistance, whose shape shall conform approximately to that of the glass globes which I use with my lamps. Such process consists in first cutting from a fibrous vegetable substance, preferably bamboo, a filament of somewhat more than the desired size (to allow for contraction during carbonization) and having enlarged ends, then carbonizing said filament in a closed chamber, preferably under pressure or strain, or both, and finally bending the flexible carbon filament thus produced into any desired shape, preferably one approaching that of the lamp-globe, its ends being secured, either before or after bending, to metallic wires. By taking hold of both ends of the carbonized filament and bending it in the middle it naturally assumes a shape approximating to that of a longitudinal section of the "pear-shaped" globe commonly employed by me, and this is the shape I prefer; but it is evident that the carbon may be bent into any other desired shape. The use of filaments of such shape of course adds to the symmetrical appearance of the lamp, and, in addition, the filament being equally near to the glass in every part throughout its length, the glass is more equally heated, and there is less danger of breakage than with

the form of filament hitherto in general use. The carbonizing-flasks used are of simpler construction, as, instead of curved grooves for holding the previously-bent filament, or blocks for holding it both at its ends and in the middle, a single straight groove only is necessary, or means for holding its ends alone. The process adds to the economy of manufacture of the lamp, for a larger number of straight filaments can be carbonized at the same time than of filaments previously bent. The carbonized filament is sufficiently flexible to be readily bent into the proper shape.

In the drawings, Figure 1 is an elevation of a completed lamp containing a filament made according my process, and Fig. 2 a view of the filament before bending.

The filament A is cut into the form illustrated in Fig. 2, and then carbonized, after which it is bent as in Fig. 1, its ends secured to metallic wires *a a*, preferably by the electro-deposition of metal upon the joints, and the whole placed within the inclosing-globe B, which is afterward exhausted of air and sealed off at *b*.

What I claim is—

The process of forming the flexible incandescing filaments of electric lamps, consisting in first forming a straight filament of carbonizable substance, then carbonizing the same, and finally bending the flexible filament thus formed into the desired shape, substantially as set forth.

This specification signed and witnessed this 9th day of October, 1882.

THOS. A. EDISON.

Witnesses:

H. W. SEELY,
E. H. PYATT.